

Pending Claims

This listing of claims is a courtesy copy of the pending claims. No amendments have been made in this reply.

1. (original) A method (90) for processing video signals in a video-on-demand system (10) comprising:
 - reserving (91) a predetermined amount of bandwidth in one or more multiplexers (21-24) of a node group to future transcoding;
 - assigning (92) one or more new video sessions to one or more unused slots in each multiplexer (21-24) of the node group until all unreserved bandwidth is allocated;
 - and
 - routing (93) one or more subsequent new video sessions through a central transcoder (15) after all unreserved bandwidth of a node group is allocated.
2. (original) The method (90) according to claim 1, further comprising:
 - assigning (94) bandwidth that becomes available from one or more terminated video sessions on a given multiplexer (21-24) in the node group for use by the central transcoder (15) to form a transcoded group of channels for the given multiplexer (21-24).
3. (original) The method (90) according to claim 2, wherein a transcoded group of channels includes a statistical multiplexed group of channels.
4. (original) The method (90) according to claim 1, further comprising:
 - expanding (95) an existing transcoded group of channels output by the central transcoder (15) to a given multiplexer (21-24) in the node group using bandwidth from one or more terminated video sessions on the given multiplexer (21-24).
5. (original) The method (90) according to claim 1, further comprising:
 - converting (96) a video session from a non-transcoded service to a transcoded service during a trick play transition.

6. (original) The method (90) according to claim 1, further comprising:
converting (96) a video session from a transcoded service to a non-transcoded service during a trick play transition.
7. (original) The method (90) according to claim 5, wherein a trick play transition includes a transition from a playback operation to an operation selected from the group of: fast-forward, rewind and pause.
8. (original) The method (90) according to claim 6, wherein a trick play transition includes a transition from a playback operation to an operation selected from the group of: fast-forward, rewind and pause.
9. (original) A method (90) for processing a plurality of channels in a communications system (10) comprising:
reserving (91) a predetermined amount of bandwidth in a multiplexer (21-24) to future compression or transcoding; and
performing (93) transcoding or compression on one or more new channels after all unreserved bandwidth of the multiplexer (21-24) is allocated.
10. (original) The method (90) according to claim 9, further comprising:
assigning (92) one or more new channels to one or more unused slots in the multiplexer (21-24) until all unreserved bandwidth is allocated before performing said transcoding.
11. (original) The method (90) according to claim 9, further comprising:
forming (49) a transcoded or compressed group of channels for the multiplexer (21-24) from bandwidth that becomes available from one or more terminated channels in the multiplexer (21-24).
12. (original) The method (90) according to claim 11, wherein the forming includes creating a compressed group of channels.

13. (original) The method (90) according to claim 12, wherein the creating includes creating a single transport stream at a constant bit rate for delivery to an edge device (14a-c) from all services in the compressed group of channels.
14. (original) The method (90) according to claim 12, wherein the creating includes: creating a plurality of single transport streams during transcoding, each having a variable bit rate that adds up to a total bit rate that will fit into the multiplexer (21-24); and
multiplexing the plurality of single transport streams at the edge device (14a-c) into one transport stream before modulating by the edge device (14a-c).
15. (original) The method (90) according to claim 9, further comprising:
expanding (95) an existing transcoded group of channels associated with the multiplexer (21-24) using bandwidth from one or more terminated channels assigned to the multiplexer (21-24).
16. (original) The method (90) according to claim 9, further comprising:
converting (96) a channel from a non-transcoded service to a transcoded service during a user initiated interruption in the channel.
17. (original) The method (90) according to claim 9, further comprising:
converting (96) a channel from a transcoded service to a non-transcoded service during a user initiated interruption in the channel.
18. (original) The method (90) according to claim 16, wherein a user initiated interruption in the channel includes a transition from a playback operation to an operation selected from the group of: fast-forward, rewind and pause.

19. (original) The method (90) according to claim 17, wherein a user initiated interruption in the channel includes a transition from a playback operation to an operation selected from the group of: fast-forward, rewind and pause.

20. (original) An apparatus (10) for processing video signals comprising:

a central transcoder (15);

one or more video servers (12a-c), each outputting one or more video signals requested by users;

one or more edge devices (14a-c) each outputting a node group of signals for transmission to each of the users, wherein each edge device (14a-c) includes one or more multiplexers (21-24), and each multiplexer (21-24) includes a plurality of channel slots;

a network (13) coupling the one or more video servers (12a-c) to the one or more edge devices (14a-c) and the central transcoder (15); and

a processor (11) assigning each of the one or more video signals output by the one or more servers (12a-c) to one channel slot of the one or more channel slots in one multiplexer (21-24) of the one or more multiplexers (21-24) in one edge device (14a-c) of the one or more edge devices (14a-c), said processor (11):

(i) reserving a predetermined amount of bandwidth in each of the one or more edge devices (14a-c) to future transcoding,

(ii) assigning one or more new user requested video signals to one or more unused channel slots in a particular multiplexer (21-24) of the one or more multiplexers (21-24) of a particular edge device (14a-c) of the one or more edge devices (14a-c) until all unreserved bandwidth is allocated in the particular edge device (14a-c) of the one or more edge devices (14a-c), and

(iii) routing one or more subsequent new user requested video signals that is designated for a particular edge device (14a-c) of the one or more edge devices (14a-c) through the central transcoder (15) after all unreserved bandwidth of the particular edge device (14a-c) of the one or more edge devices (14a-c) is allocated.

21. (original) The apparatus (10) according to claim 20, wherein said processor (11):
assigns bandwidth associated with a channel slot that becomes available from one or more terminated video sessions on a given multiplexer (21-24) of the one or more multiplexers (21-24) in a given edge device (14a-c) of the one or more edge devices (14a-c) for use by the central transcoder (15) to form a transcoded group of channels for the given multiplexer (21-24).
22. (original) The apparatus (10) according to claim 21, wherein a transcoded group of channels includes a statistical multiplexed group of channels.
23. (original) The apparatus (10) according to claim 20, wherein said processor (11):
expands an existing transcoded group of channels output by the central transcoder (15) to a given multiplexer (21-24) of the one or more multiplexers (21-24) in a given edge device (14a-c) of the one or more edge devices (14a-c) using bandwidth from one or more terminated video sessions on the given multiplexer (21-24).
24. (original) An apparatus (10) for processing video signals output by one or more video servers (12a-c), each outputting one or more video signals requested by one or more users, said apparatus (10) comprising:
a central transcoder (15);
one or more edge devices (14a-c) each outputting a node group of signals for transmission to each of the one or more users, wherein each edge device (14a-c) includes one or more multiplexers (21-24), and each multiplexer (21-24) includes a plurality of channel slots; and
a processor (11) assigning each of the one or more video signals to one channel slot of the one or more channel slots in one multiplexer (21-24) of the one or more multiplexers (21-24) in one edge device (14a-c) of the one or more edge devices (14a-c), said processor (11):
(i) reserving a predetermined amount of bandwidth in each of the one or more multiplexers (21-24) in each of the one or more edge devices (14a-c) for future transcoding; and

(ii) routing one or more new user requested video signals designated for a given edge device (14a-c) of the one or more edge devices (14a-c) through the central transcoder (15) after all unreserved bandwidth of the given edge device (14a-c) is allocated.

25. (original) The apparatus (10) according to claim 24, further comprising:
a network (13) coupling the one or more video servers (12a-c) to the one or more edge devices (14a-c) and the central transcoder (15).
26. (original) The apparatus (10) according to claim 24, wherein the processor (11):
assigns one or more new requested video signals to one or more unused slots in a given multiplexer (21-24) of the given edge device (14a-c) until all unreserved bandwidth in the given edge device (14a-c) is allocated before routing the one or more new user requested video signals through the central transcoder (15).
27. (original) The apparatus (10) according to claim 24, wherein the central transcoder (15):
forms a transcoded group of channels for a given multiplexer (21-24) from bandwidth that becomes available from one or more terminated video sessions in given multiplexer (21-24).
28. (original) The apparatus (10) according to claim 27, wherein the central transcoder (15) forms a statistical multiplex group.
29. (original) The apparatus (10) according to claim 28, wherein the central transcoder (15) forms the statistical multiplex group by creating a multi-program transport stream at a constant bit rate for delivery to the edge device (14a-c) of the given multiplexer (21-24) from all services in the statistical multiplex group.

30. (original) The apparatus (10) according to claim 28, wherein the central transcoder (15) forms the statistical multiplex group by creating a plurality of single-program transport streams during transcoding, each having a variable bit rate that adds up to a total bit rate that will fit into the given multiplexer (21-24), and the edge device (14a-c) of the given multiplexer multiplexes the plurality of single-program transport streams into a multi-program transport stream.